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## PETROLEUM INDUSTRY GETS NEW, MORE EFFECTIVE BITS

CONTRIBUTION OF BAKU PLANT BASED ON IMPROVED TECHNOLOGY, MANAGEMENT -- Baku, Bakinskiy Rabochiy, 17 Jan 51

The Baku Plant imeni Kirov, under Director R. Mamedli, is now producing equipment to be used in forced drilling methods, which make it possible to tap reserves at great depths. Of prime importance in this field are the quality of the drilling bit and the tool joint, both of which are manufactured in the plant.

The quality of drills has been improved considerably during the current Five-Year Plan. During the first years of the plan, drilling was frequently hindered by the poor quality of the drills, which at that time were made with cones having uniform teeth. It was found that they did not pulverize the rock rapidly enough, however, and in 1947 a new bit was developed, having stronger bearings and broken-file teeth.

The heavy axial load and rotor speed required by high-speed methods called for radical changes in small and medium bits. In 1947, the plant began to produce drills of varying diameters with single-part cone housings. Use of these bits enabled drillers to get higher speeds without running the risk of breakdowns.

Prod tion of the single-part-housing bits permitted simpler technology and reduced labor consumption. Production costs were cut, and the number of manufacturing steps was reducted from 26 to 21. Further perfection of the manufacturing technology cut the number of steps to 11 to 1948. The bit housing was now cast, rather than forged, and the cutting of threads was taken from turning lathes to thread-milling machines. The plant was thus able to free five lathes for other work.

Milling the teeth of the cones on vertical milling machines made it possible to speed the cutting process, with one operator running several machines.

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At the same time, there was a complete change in the heat treatment of tool joints. This new technique eliminated two highly labor-consuming operations: zinc coating the threads and sand blasting. All quenching baths were fitted with mechanized platforms, freeing many workers.

As part of general reorganization of the production setup, the manufacture of small-diameter drills and tool joints has been transferred to separate shops.

Specialization in the tool-joint shop has made it possible to institute assembly-line production, and to raise the economic and technical work indexes.

Following up the increased demand for tool joints, the Ministry of Petroleum Industry at the end of 1949 considered it necessary to enlarge the plant, so that it would be able to run production of tool joints 70 percent above the 1949 level. It was estimated that this would cost several million rubles, but the management met the task through utilization of productive reserves. Putting advanced technology into production cycle, and broadening the sphere of mechanized operations, the productivity of labor was boosted and costs of production were cut. Besides improving the quality of products, the plant attained a 68-percent increase in the output of tool joints by January 1950. This was accomplished at a very small capital outlay. The Five-Year Plan for production of drilling equipment was more than doubled by the end of 1950. Compared with the first year of the Five-Year Plan, gross production increased  $3\frac{1}{2}$  times. Output of three-cone drills increased 4.28 times, and of tool joints,  $1\frac{1}{2}$  times. Productivity of labor has grown 2.24 times during the 5-year period.

There had been considerable reduction in labor consumption per item of production. In 1947, for example, it took 99 hours to turn out a drill of llinches diameter, while in 1949, it took only 43 hours to produce it.

Such reduction in labor consumption, together with measures cutting down expenditure of metal and electric energy, have been strong factors in reducing production costs. In 1946, the plant saved 48,000 rubles, while in 1950, above plan accumulation as a result of reducing production costs amounted to 1,220,000 rubles.

Baku, Bakinskiy Rabochiy, 17 Jan 51

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The Baku Plant imeni Kirov is producing a new bit, designed originally for use in turbodrills, but suitable for rotary drilling. The new bit has three cones set in a single-part housing. It has performed well on tests with rotary rigs, working under a string load of 14-15 tons. These tests were witnessed by Ferid Melkovich, the chief engineer of the plant, and Boris Nikolayevich Kramarenko, the chief designer.

The plant educational program and the council for invention and rationalization have greatly furthered production and technical accomplishments. During 1950, over 800 workers completed technical training courses, while innovators' suggestions which were put into practice are estimated to have save 2,500,000 rubles during that period.

Baku, Bakinskiy Rabochiy, 17 Jan 51

Bit shop No 2 of the Baku Plant imeni Kirov met its 1950 quota early, puting out hundreds of above-plan bits. Specializing in the production of bits of small diameter, the shop was set up in 1948, and is the newest one in the plant. All its cutting and milling machines are operated under high-speed methods, and shifts are relieved without stopping the machines.

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